MicroSurvey Tracker

Reference Manual

MicroSurvey Tracker Reference Manual

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Seller warrants that the product specified in this agreement is free of defects in materials and workmanship, and shall conform to the latest specifications published prior to Buyer's acceptance of the agreement for a period of two years.

Product specifications as defined supersede previous specifications and are complete. Any parameter that is not specifically defined in the specifications is expressly excluded from the warranty. This warranty does not apply to any product which has been subject to misuse, accident, alteration, or if the unit has been serviced by anyone other than an authorized representative of Seller.

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To maintain your warranty and to avoid hazards, only qualified and authorized personnel should perform modifications to the MicroSurvey Tracker. MicroSurvey Software, Inc. cannot assume responsibility for any condition affecting the proper operation of this equipment that may result from unauthorized modifications.

Product Returns

If, after inspection, you note any product damage or discrepancies, please contact us promptly within five days of receipt. If the exterior of the package shows obvious signs of damage, please contact your carrier directly.

All items returned to MicroSurvey Software, Inc. require a Return Material Authorization number (RMA). Please contact MicroSurvey Software, Inc.' Service department to request an RMA number.

Regulatory Notices

FCC Compliance

This device complies with Part 15 Subpart B Class A of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

Canadian Compliance

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications

Le present appareil numerique n'emet pas de bruits radioelectrique depassant les limites applicables aux appareils numeriques de la class A prescrites dans le Reglement sur ie broullage radioelectrique edicte par le ministere des Communications du Canada.

Certifications

CENELEC

CE*

*Pending

EMI Standards

- EN55022:1998 (CISPR22, Class B) Information Technology
- EN55011 (CISPR11, Class A) Industrial, Scientific and Medical

EMC Standards

- EN50082-1: 1997, General Immunity Part 1
- EN55024: 98 (CISPR24: 1997) Information Technology Equipment

Safety Standards

- EN60950:2000 Safety of Information Technology Equipment

Warnings

Changes or modifications to this unit not expressly approved by the party responsible for regulatory compliance could void the user's authority to operate the equipment.

Electrostatic Discharge (ESD)

Electrostatic discharge (static electricity) can have unpredictable adverse effects on any electronic device. Although the design of this product incorporates extensive ESD-related precautions, ESD can still cause problems. It is good practice to discharge static by touching a grounded metal object before inserting cards or connecting devices.

Contents

List of Figures

List of Tables

Chapter 1: Overview

About the MicroSurvey Tracker

With its modern, ergonomic appearance and design, the MicroSurvey Tracker is the latest addition to the line of products developed by MicroSurvey Software, Inc.

The MicroSurvey Tracker features a powerful Windows CE .NET operating system, the Intel XScale processor and a wide selection of compatible peripherals (ARM Technology processor architecture). It supports a wide variety of removable peripheral devices, such as wireless LANs, modems, bar code readers, cameras and Bluetooth.

The MicroSurvey Tracker is either battery-powered (Nickel Metal Hydride rechargeable battery pack or six AA Alkaline batteries) or line-powered (7.5 - 18 VDC).

MicroSurvey Tracker Features

Power

The MicroSurvey Tracker comes standard as a battery powered unit with a rechargeable Nickel Metal Hydride (NiMH) battery pack, which is interchangeable with AA Alkaline batteries. Operating time on a full charge can range from eight to twelve hours, depending on power management and use. A multicolor LED indicates the current battery status as either charging (green) or low-battery (red).

Operating System

The MicroSurvey Tracker uses Windows CE .NET Professional 4.2 as its operating system.

Processor

The MicroSurvey Tracker utilizes an Intel PXA255 processor with XScale technology at 200MHz (400MHz optional).The Intel PXA255 processor is a highly integrated, 32-bit RISC processor that combines the efficiency of Intel design with the ARM v.5TE instruction set architecture.

Memory and Mass Storage

The MicroSurvey Tracker comes standard with 64MB of SDRAM and 128MB of internal compact flash memory (approximately 16MB used for operating system). The compact flash memory is expandable to 256MB. For removable data storage or I/O cards, the MicroSurvey Tracker is equipped with a Compact Flash (CF) slot.

Displays

The MicroSurvey Tracker features a supertwist nematic liquid crystal 320 x 240 QVGA-TFT color display. This 'touch screen' is readable in direct sunlight, as well as dark conditions using the optional LED backlight.

Keypads

Standard keypad configuration for the MicroSurvey Tracker is a 45-key membrane or optional elastomeric backlit keypad.

Indicators

The MicroSurvey Tracker has five programmable LED indicators that can provide a number of useful functions including the state of keypad modifier keys. An additional LED indicator shows charge and low battery statuses.

Interface

The MicroSurvey Tracker comes standard with an RS-232 serial port configured as COM1 via a DB9 (nine pin male connection).

Durability

The case is made of General Electric Xenoy, one of the most durable chemical resistant materials available today.

Chapter 2: Tracker Components

Components and Indicators

This section describes the components and indicators found on the MicroSurvey Tracker.

Figure 2-1: Components and Indicators

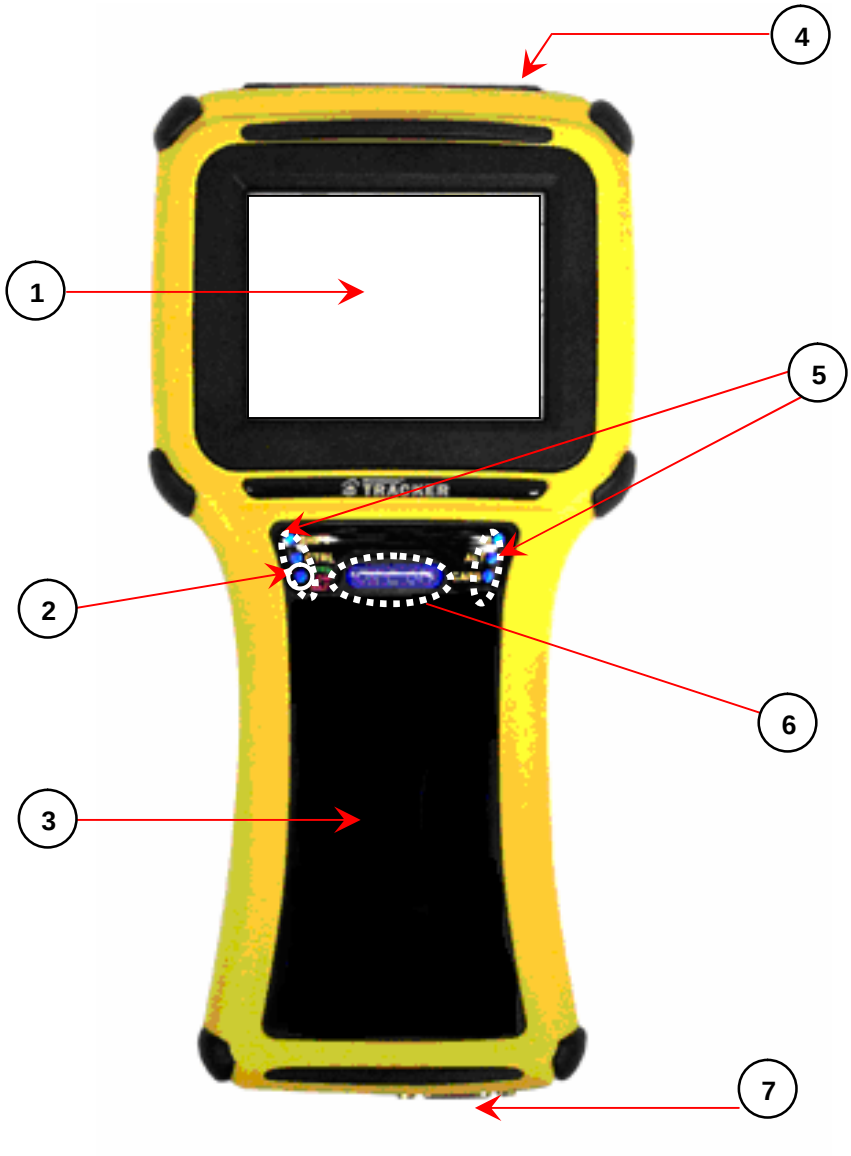


Table 2-1: Components and Indicators

Item	Function	Description
1	Display	Supertwist nematic liquid crystal display with touch screen
2	Battery Indicator	Indicates low battery (red) and charging (green) statuses
3	Keypad	Standard 30-key keypad
4	Compact Flash Slot	Compact flash slot for memory and device cards
5	LEDs	Standard configuration with 30-key keypad indicates use of the SHIFT, CTRL, 2ND, ALT and CAPS modifier keys
6	ON/OFF Switch	Controls the Power, Suspend and Resume operations
7	Communication Port	Standard RS-232 serial port (DB9 communication port)

Compact Flash Slot

The compact flash slot located on the top of the MicroSurvey Tracker is used to insert and remove and device cards. For more information, see Using the Compact Flash Slot.

Figure 2-2: Compact Flash Slot in Closed Position

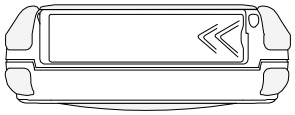
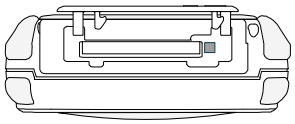


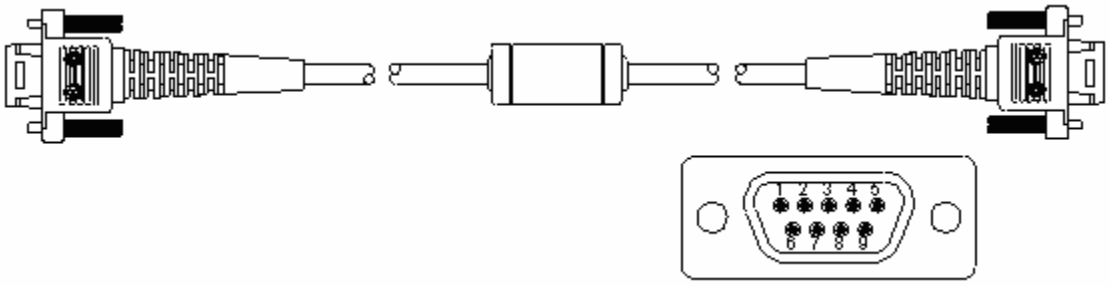
Figure 2-3: Compact Flash Slot in Open Position



Interface / Cable and Power Connections

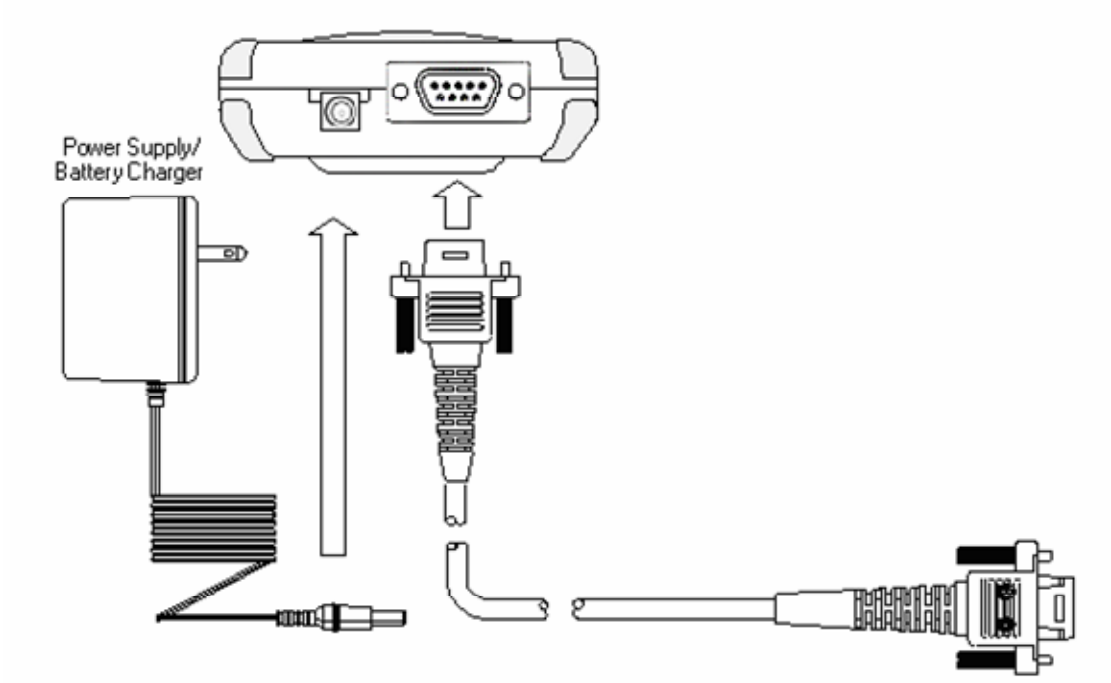
The MicroSurvey Tracker is configured to provide RS-232 serial communication. The DB9 serial port, found on the bottom of the Tracker, features positive connector retention without hardware restraints for quick connect/disconnect operations and a contact design that prevents failure due to pin fatigue and cable stress after repeated use.

Figure 2-4: RS-232 Serial Cable and DB9 Communication Port



The Tracker also has a connection to allow power input at 11 to 18 VDC. This power jack, located on the bottom of the unit, is used for both line-power and battery charging. To charge the Tracker, connect the power supply connector (included with Tracker) to the power jack. The power supply transformer can then be plugged into a power outlet. This is illustrated in Figure 2-5.

Figure 2-5: Bottom view of Tracker showing Power Jack and DB9 Communication Port



***Note**: Use only the Power supply/Battery Charger Transformer that is included with the MicroSurvey Tracker.*

Chapter 3: Operation

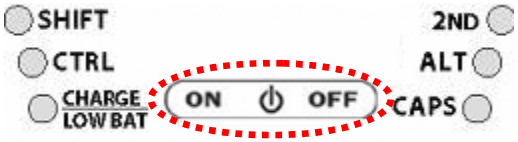
Power

Power/Suspend Switch

The ON/OFF switch is located above the keypad. Its function depends on the state of the MicroSurvey Tracker at the time the switch is pressed and on the length of time that the switch is depressed. Operations that the Power switch can initiate are:

- Power On
- Power Off
- Suspend Mode
- Soft Reset (see: Reset Device)
- Hard Reset (see: Reset Device)

Figure 3-1: Power/Suspend Switch



Power On

To power on the MicroSurvey Tracker:

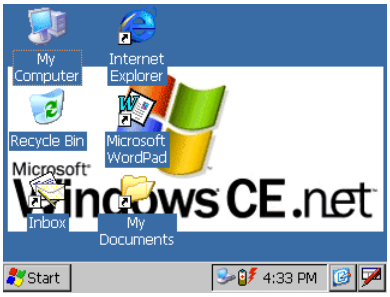
1. Press and hold the ON/OFF switch for one second.
2. The unit should turn on and begin displaying the boot-up process. For example:

```
*****       JETT.ce
*****
Loader Ver x.x.x
Booting from System Socket
Loading CE image...
##################
```

Where x.x.x is the version number. This screen is only displayed when a new battery is inserted or a hard reset has been performed.

3. After approximately 20-25 seconds, the Windows CE .NET desktop should appear.

   If the unit does not power up or you cannot select any items from the desktop, refer to the "Troubleshooting" chapter for help.



Power Off/Suspend Mode

To turn off the MicroSurvey Tracker, press and hold the ON/OFF switch for one second. This action will allows you to suspend, but not terminate active applications. Press the ON/OFF button to resume normal operation.

Reset Device

Soft Reset

To soft reset the MicroSurvey Tracker: **Start > Programs > Tools** and then press the **Warm Boot** command. This will not erase the registry or remove installed programs.

Hard Reset

To perform a hard reset on the MicroSurvey Tracker, press and hold the ON/OFF switch between 10 and 15 seconds. The screen should turn off, and the boot-up process should start when you press the ON/OFF button. After approximately 20-25 seconds, the Windows CE .NET desktop should appear.

***Note**: Holding the Power/Resume button longer than six seconds will turn off the MicroSurvey Tracker.*

***Note**: A hard reset will not erase anything saved in the System CF location on your Tracker.*

The Tracker is set up to create a shortcut for Evidence Recorder on the main desktop after a hard reset. Starting Evidence Recorder using this icon will automatically restore the program.

Battery-Powered Operation

The MicroSurvey Tracker is powered by a rechargeable Nickel Metal Hydride (NiMH) battery pack that has an average operating time between ten and twelve hours on a full charge with power management and approximately eight hours without power management. As with all battery-powered devices, the operating time is completely dependent on the environment, device usage and the number and type of power-drawing peripherals attached. The battery discharge rate in a full "Power Off" state is only slightly higher to the self-discharge rate of the battery itself.

***Note**: Allowing the batteries to remain in a low or very low condition will cause the unit to enter Suspend mode. In either case, you should save your work and recharge the unit as soon as possible*

Power Management

To lengthen the time between charges, you can perform the following actions:

- **Use external power for PC Card operations whenever possible—** some PC Cards as well as extended communication via the serial port, may require large amounts of power to operate, and can quickly drain the batteries.
- **Limit the use of backlight—**minimize backlight use when you are operating on battery power. You can adjust the backlight timeout level through the Display Settings in the Control Panel or on some units by using the keypad.
- **Shorten Auto-suspend time—**the MicroSurvey Tracker is automatically set to suspend operation to conserve battery power when you have not used the keyboard or the stylus after three minutes. You can increase the Auto-suspend time by changing the Power settings in the Control Panel.

Charge/Low Battery Indicator

When using batteries, the CHARGE/LOW BAT LED will indicate the current battery status as shown in Table 3-1.

Figure 3-2: Charge/Low Battery Indicator

Table 3-1: Charge/Low Battery Indicator Functions

Function	*Description*
CHARGE	With the power supply connected, the CHARGE/LOW BAT LED will indicate one of following conditions: ▪ **High Power Charge—**the LED will turn solid green ▪ **Fully/Near Full Charge—**the LED will blink green about four times a second ▪ **Trickle Charge—**the LED will blink green approximately once per second when either the battery voltage and/or temperature of the battery assembly are not within acceptable limits
LOW BAT	With the power supply disconnected, the CHARGE/LOW BAT LED will indicate one of following conditions: ▪ **Batteries are low—** the CHARGE/LOW BAT LED will blink red once per second when there is approximately 60 minutes of power remaining ▪ **Batteries are very low—**the CHARGE/LOW BAT LED will turn solid red when there is approximately 10 minutes of power is remaining

Charging the Unit

The nickel metal hydride battery technology used in the MicroSurvey Tracker has exceptional charge life without the "charge memory" characteristic of conventional nickel cadmium batteries. Partially discharged batteries or extended periods with the charger left connected will not adversely affect battery life or performance.

***Note**: Because the internal battery charger senses several conditions, including temperature, you should charge the unit away from any known or potential heat sources. Units exposed to temperatures in excess of 110 degrees Fahrenheit (43 degrees Celsius) during the charge cycle may experience incomplete charging and reduced operating time per charge.*

To charge the MicroSurvey Tracker:

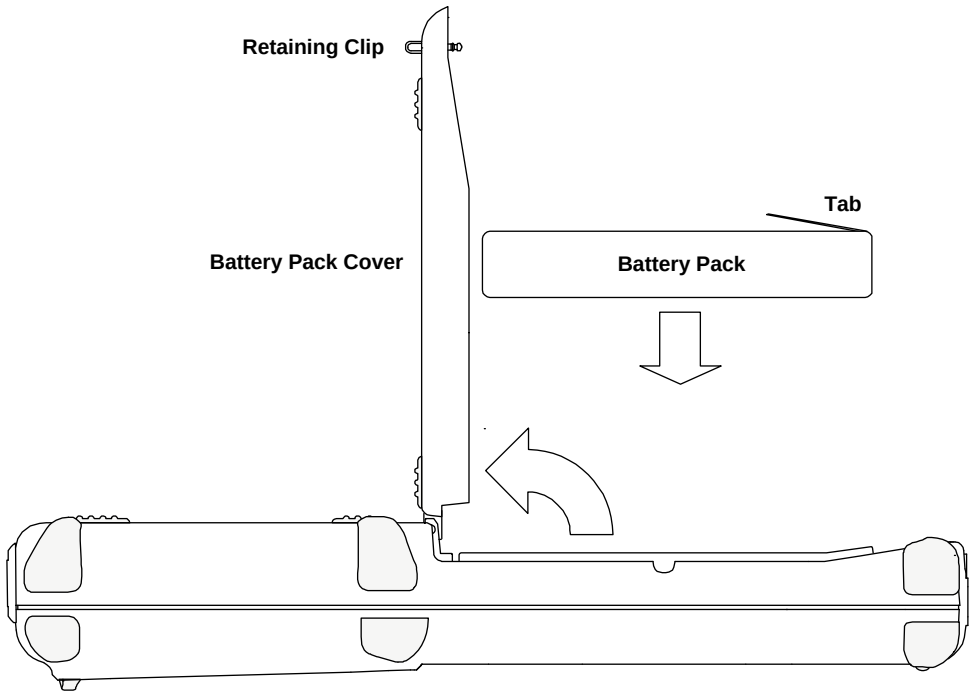
1. Plug the power supply connector into the connector on the bottom of the MicroSurvey Tracker. Plug the power supply transformer into a power outlet. (see: Figure 2-5)
2. The Charge LED should turn on, indicating that the batteries are charging. While the MicroSurvey Tracker is charging, you can still use it.
3. Once the battery is fully charged (approximately three hours), disconnect the AC power supply and run the MicroSurvey Tracker exclusively on battery power.

Changing Batteries

To change batteries:

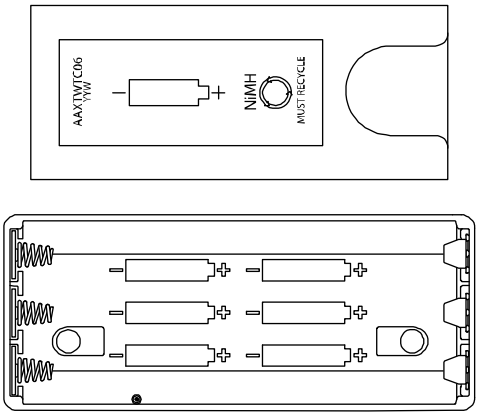
1. With the unit face down, pull the battery cover retaining clip up from its recessed slot and turn the clip in a counter clockwise motion.
2. Lift the cover up and remove the batteries.
3. If the unit contains a battery pack, use the tab on the battery pack to lift up and then out.

Figure 3-3: Changing Batteries



4. Insert the new batteries or battery pack into the Tracker using the orientation shown in Figure 3-4.

Figure 3-4: Battery Orientation



5. Close the battery cover and turn the battery cover retaining clip clockwise to lock the cover.

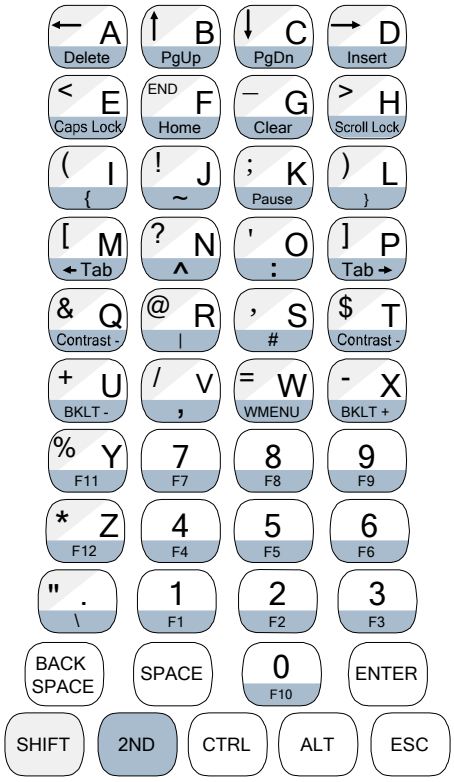
***Note**: Removing the batteries will reset your device and data not stored in the System CF will be lost.*

Data Entry

45-Key Keypad

In order to provide the functionality of a full-sized keyboard with only 45 keys, the MicroSurvey Tracker keypad must depart from PC-style key assignment conventions. Units configured with the standard 45-key keypad typically utilize five LED indicators (located above the ON/OFF switch) to indicate the active state of keypad modifier keys. Units with internal batteries also use a LED to indicate the battery status (Table 3-1). Units with 45-key keypads also have keypad functions to adjust the contrast and backlight.

Figure 3-5: 45-Key Keypad



Modifier Keys

The following modifier keys (located on the bottom two rows of the standard keypad) enable you to access the various functions that can appear on a key. Figure 3-6 provides an example. Modifier keys take effect when pressed and typically remain in effect until you press another key, unless it is another Modifier key. The units are equipped with LEDs to indicate the selection of a Modifier key.

ALT Key

The ALT key operates in the same manner as on conventional PCs, except that by default it has a one-time locking action to facilitate one-handed operation.

SHIFT Key

Unlike conventional PC keyboards, the SHIFT key enables you to access symbols, punctuation marks and navigation arrows rather than shift alphabetic keys to uppercase. The SHIFT key has a one-time locking action to facilitate one-handed operation.

Figure 3-6: Multifunctional Key

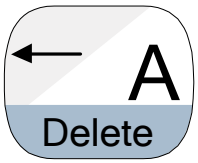


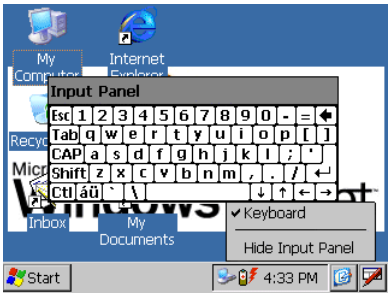
Table 3-2: Modifier Key Actions

Key Presses	*Result*
A	Lowercase “a”
Shift & A	Move cursor left one position
2ND & A	Delete Character
2ND & Caps Lock	Uppercase “A”

Input Panel

In addition to entering data through the keypad, you can also enter data by tapping the Input Panel icon located in the system area of the taskbar.

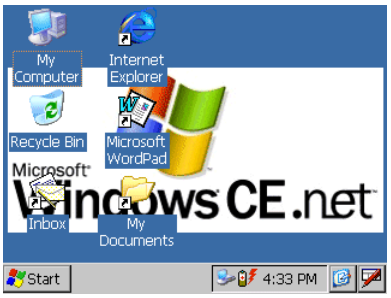
Figure 3-7: Input Panel



The Windows CE .NET Desktop

This section provides a brief overview of the functions that appear on the MicroSurvey Tracker desktop. For information on how to change desktop settings, refer to the unit's on-line help.

Figure 3-8: Windows CE .NET Desktop



Desktop Functions

You can access the following applications, functions and data entry utilities from the MicroSurvey Tracker desktop:

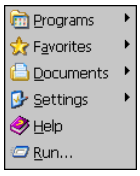
Table 3-3: Desktop Functions

Icon	*Function*	*Description*
	Recycle Bin	Use the Recycle Bin to restore deleted files or empty the bin to create more disk space.
	My Computer	Use My Computer to navigate and view the folders and files stored on the MicroSurvey Tracker.
	Inbox	Use the Inbox to send and receive e-mail by connecting to a POP3 or IMAP4 server.
	My Documents	The default storage location for documents, graphics, and other files.
	Microsoft WordPad	Use WordPad to create or edit text files that contain formatting or graphics.
	Internet Explorer	Use Pocket Internet Explorer to view Web pages. You will need a modem or Ethernet card to connect to an Internet service provider (ISP) or network.

The Start Menu

When you tap **Start**, the Start menu appears.

Figure 3-9: Start Menu



From this menu, you can:

- Open programs that do not appear on the desktop
- View a list of web sites added to your Favorites List
- View recently accessed documents and images
- Access the Control Panel, establish connections, or configure the Taskbar and Start Menu
- View Help
- Start an application using the Run command
- Place the unit in Suspend mode

The Taskbar

The taskbar at the bottom of the MicroSurvey Tracker desktop displays the Start button, buttons of currently running applications, the Status Area and the Show Desktop icon.

Figure 3-10: Windows CE .NET Desktop Taskbar

Tap the Start button to display the Start menu (see below for details). For each open application, a button appears on the taskbar. Simply tap the application's button to activate it.

The status area appears on the right and by default displays small icons for the input panel, current time, power status and network connections. Tap a small icon to activate the related program.

Tapping the Show Desktop icon minimizes active applications and redisplays the desktop. Tapping the Keyboard icon displays the Input Panel menu for data entry.

To increase viewing area in Evidence Recorder, the factory default is to hide the taskbar. You can display the taskbar by tapping along the bottom edge of the display window. To restore the taskbar to continuous display:

1. Select **Start > Settings > Taskbar and Start Menu …**
2. On the **General** tab, uncheck **Auto hide**
3. Tap the **OK** button and the task bar is restored.

For more detail see: Taskbar and Start Menu Settings.

Power Status Icons

The MicroSurvey Tracker will display power status icons (Table 3-4) in the taskbar status area (Figure 3-10) to indicate power use, charging status and low battery conditions.

Table 3-4: Power Status Icons

Icon	*Description*
	External AC power supply connected
	Batteries are charging
	Batteries are low—approximately 60 minutes or less of use remaining (the CHARGE/LOW BAT LED will blink red once per second)
	Batteries are very low—approximately 10 minutes or less of use remaining (the CHARGE/LOW BAT LED will turn solid red)

Using ActiveSync

This section will describe the necessary steps to download/upload data from the MicroSurvey Tracker's flash memory.

ActiveSync is a communication software written by MicroSoft to allow PDA and other handheld devices to connect to Workstation (PC) or laptop computers. This software will be necessary to allow communication between your MicroSurvey Tracker and Workstation/laptop. In order to transfer Scenes directly into MapScenes software will require an additional component on top of the ActiveSync program. When the above software is installed and configured you can then connect the Tracker to the Workstation/laptop via the serial cable provided (see: Interface / Cable and Power Connections) and Scenes collected in Evidence Recorder will be automatically transferred to the MapScenes program on your computer.

(On your Workstation/laptop) if you have a version of Microsoft ActiveSync earlier than version 3.7, you should remove the program from the system before installing ActiveSync 3.7. If you have a version of ActiveSync installed, but unsure of the version, start the program and select **About Microsoft ActiveSync** from the Help menu.

Installing Microsoft ActiveSync

As mentioned above, it is required that you install Microsoft ActiveSync 3.7 software on your Workstation (PC) or laptop.

1. Locate the ActiveSync Executable file.

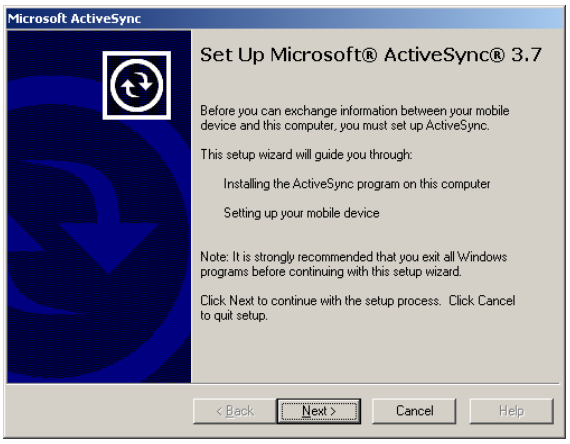
   Version 3.7 is included on the *MapScenes/Evidence Recorder* software CD and is located in the EvidenceRecorder directory. There is NO setup option through the software install menu. To install you must browse to the file named "MSASYNC37.EXE" and double-click to initiate the process.

   If you do not have an install CD from MicroSurvey you can find this version of ActiveSync at the Microsoft website:
   http://www.microsoft.com/mobile/pocketpc/downloads/activesync37.asp
   Download this file to your Workstation/laptop making note of the download directory. The installation instructions for ActiveSync are the same as above. Double-clicking the "MSASYNC37.EXE" file will begin the process.

   Note: *The current version at the time of this printing was 3.7, but be sure to download the latest version. You may have to use an earlier version if you are running Windows 95 or 98. Check the web page noted above for more information.*

2. After the install process has been started you will see a few dialog boxes and status bars pop up that indicate ActiveSync is copying necessary files to the Workstation/laptop hard drive. Once this procedure is complete you will see the Set Up window as shown in Figure 3-11.

Figure 3-11: ActiveSync Set Up Window



Select the **Next** button and continue to follow the instructions on the install wizard, accepting all defaults for a typical installation.

***Note**: You may be asked to reboot your system once the ActiveSync Install is complete.*

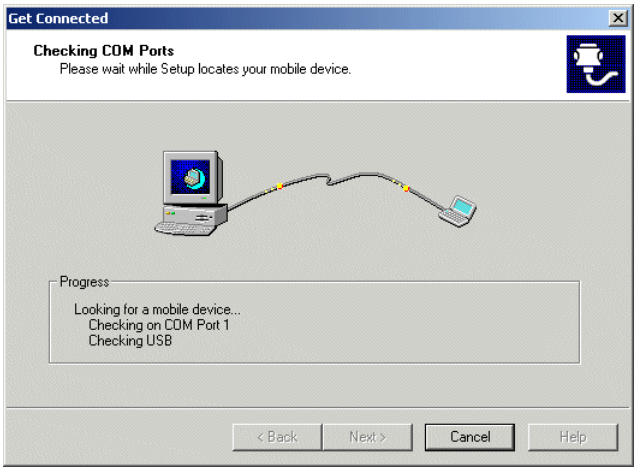
Establishing an ActiveSync Partnership with the Tracker

The ActiveSync Partnership facilitates automatic communication between your Workstation (PC) /laptop and the MicroSurvey Tracker. The following steps outline the configuration of ActiveSync allowing the Workstation/laptop to recognize the Tracker each time it is connected.

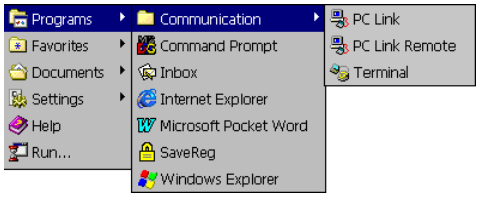
***Note**: These steps are only required to create the initial partnership. For subsequent downloading/uploading sessions see: Subsequent Communication.*

1. Connect the MicroSurvey Tracker interface cable to an available COM port on the Workstation/laptop and the COM 1 port of the MicroSurvey Tracker. See the following section for more detail: Interface / Cable and Power Connections.
2. On your Workstation/laptop start up the ActiveSync program: **Start > Programs > Microsoft ActiveSync**. The Get Connected Wizard should appear. If it does not, go to the ActiveSync **File** menu and select **Get Connected**. When the Wizard appears click **Next**. ActiveSync will then attempt to connect to the MicroSurvey Tracker.

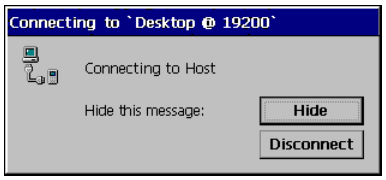
***Note**: You can also start the program by double-clicking the ActiveSync icon in the system tray. The System Tray consists of a series of icons appearing in the lower right corner of your Workstation/laptop monitor (next to the Windows clock.)*



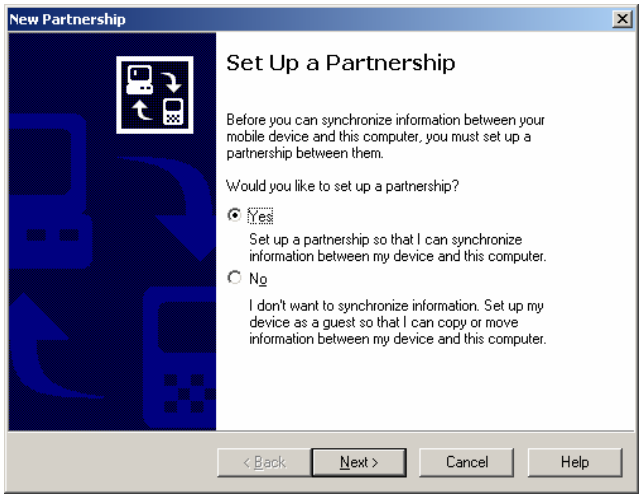
3. On the MicroSurvey Tracker, tap **Start** and then select **Programs > Communications > PC Link**. You can also initiate this command through the **PC Link** icon on the Tracker desktop.



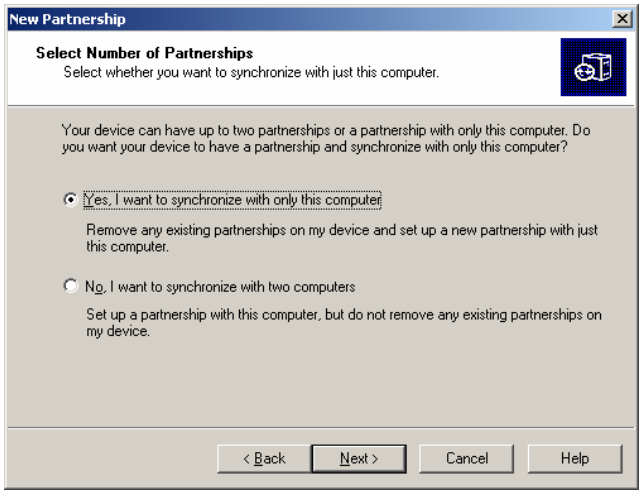
The following message box appears:



4. Once the Tracker has established communication with the Workstation/laptop, the connecting message on the MicroSurvey Tracker will close and the Set up a Partnership dialog box will appear on the PC. Select **Yes** and click **Next** to continue.

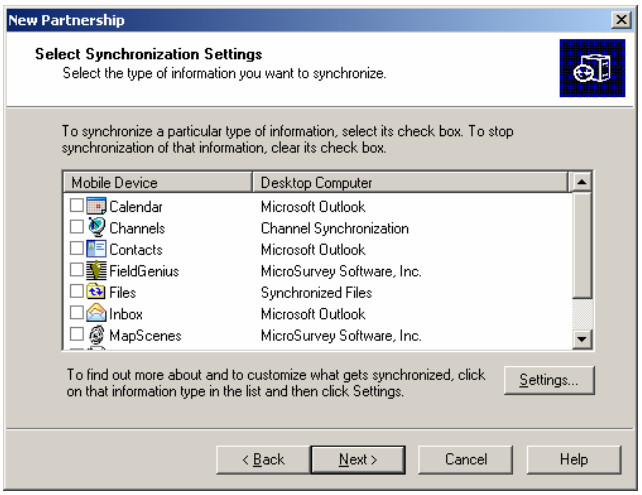


5. You are now presented with the following dialog window. Here you must specify how you wish to synchronize your data. (Select the appropriate number of computers and) Click **Next** to continue.

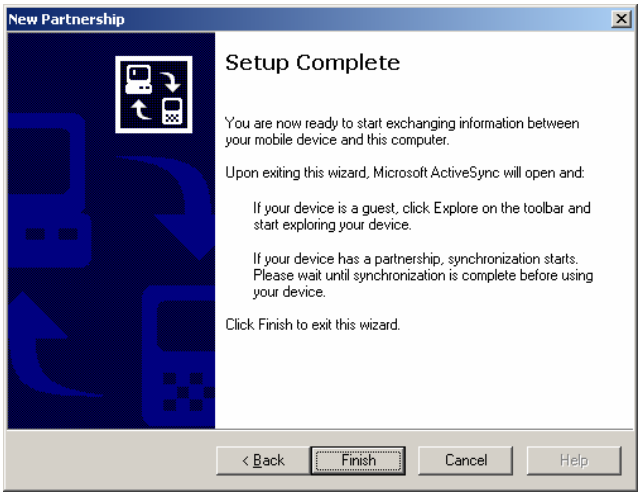


***Note**: You may have a partnership with up to two computers but we will specify only one in our set up.*

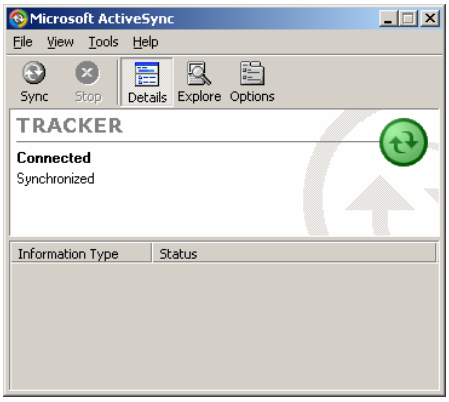
6. The next window allows you to specify your Synchronization Settings. Here you must de-select (toggle off) all the options listed. Click **Next** to continue.



7. You will now see the Setup Complete window. Click **Finish** to complete the partnership setup process.



8. The Microsoft ActiveSync window on the Workstation/laptop will now display the TRACKER as shown below.



***Note**: The small circular ActiveSync icon in the system tray will appear gray when ActiveSync is inactive but will change to green when the Tracker is connected.*

Installing the MapScenes Sync into your ActiveSync

Before ActiveSync will recognize the Evidence Recorder program and the Scenes that have been collected on the Tracker, you must first install an additional component to your ActiveSync program. The MapScenes Sync can be thought of as the transfer utility that allows ActiveSync to compare the Scenes on your Worstation/laptop (in the MapScenes software) to the Scenes collected on the Tracker. This program is available from the MapScenes website, as well as the *MapScenes /Evidence Recorder* CD. The following instructions are to be used when installing from CD.

***Note**: Do not proceed to this step unless you have successfully created a partnership between the Workstation/laptop and the MicroSurvey Tracker.*

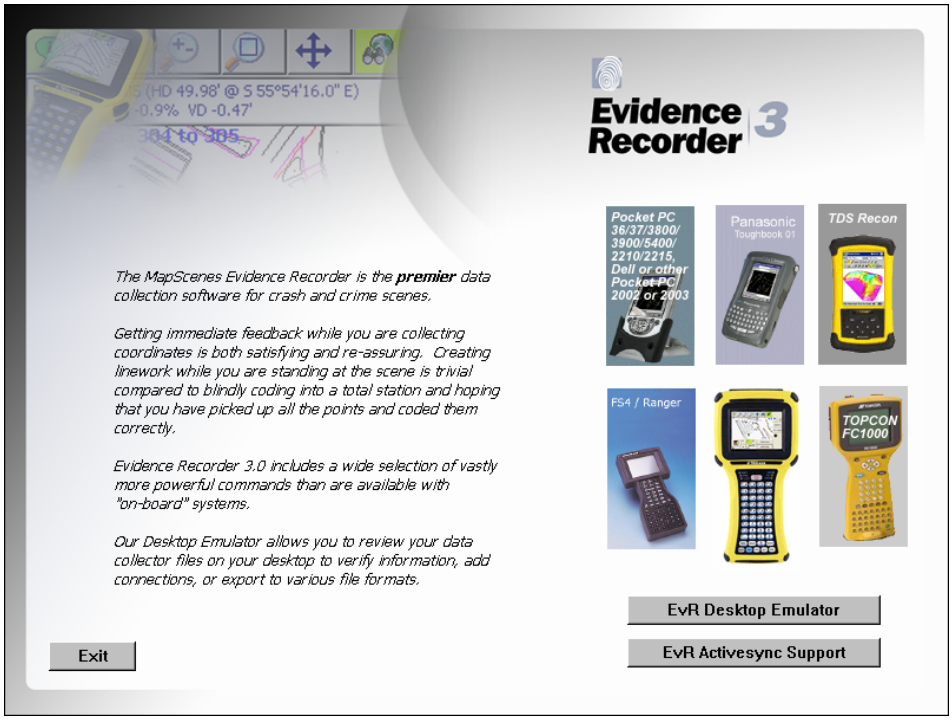
1. When the *MapScenes /Evidence Recorder* program CD is loaded into the Workstation/laptop (CD tray) the following window should appear as shown in Figure 3-12. Select the "About Evidence Recorder 3.0" option.

Figure 3-12: MapScenes/EvidenceRecorder Setup Window

2. You are now presented with an additional dialog window as shown in Figure 3-13. Proceed with **first installing** "EVR ActiveSync Support." The InstallShield Wizard guides you through the rest of the installation. Accept all defaults for this simple installation.

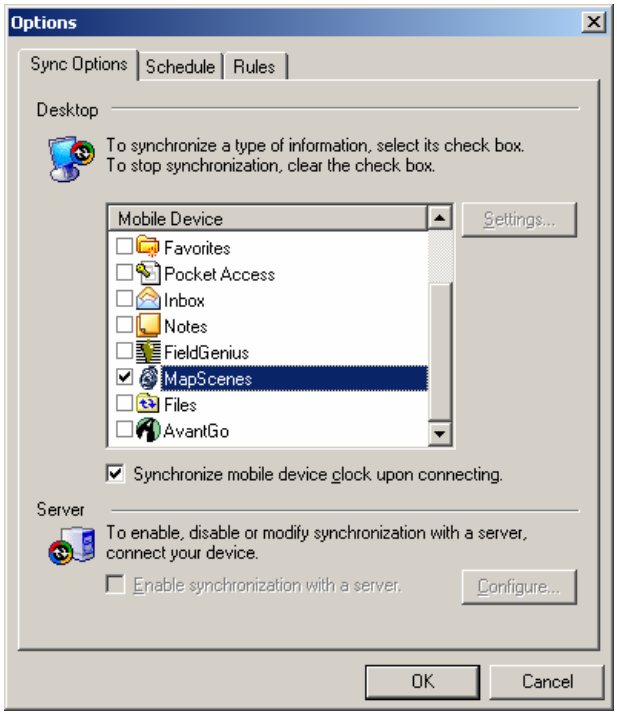
***Note**: It is not necessary to install Evidence Recorder. The MicroSurvey Tracker has EvidenceRecorder software already installed.*

Figure 3-13: ActiveSync Support



3. After the above install is complete, open up the ActiveSync program on the Workstation/laptop. Select the **Options** button (or **Options** under the **Tool** menu). The window that appears is shown in Figure 3-14. Select "MapScenes" from the available programs then **OK**.

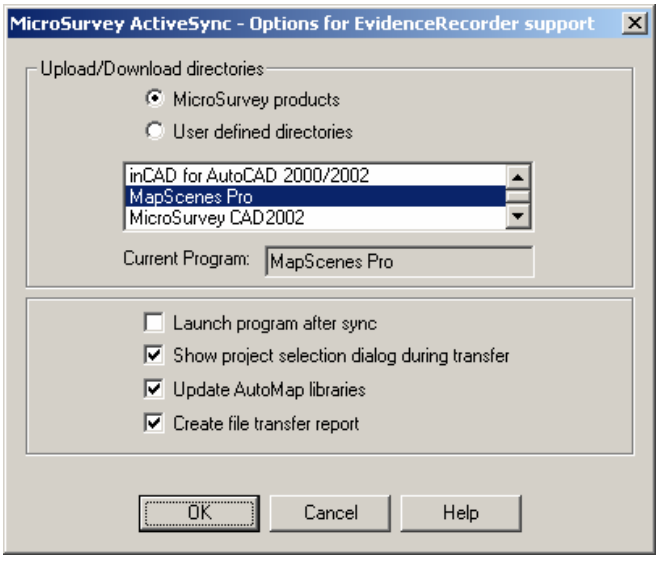
Figure 3-14: The Options Window in ActiveSync



***Note**: If MapScenes does not appear on this list, there has been an error in the installation. You will have to go back and re-do the "Install ActiveSync Support."*

4. Upon installing the ActiveSync support you are presented with further options regarding the location where you would like the Scenes to be downloaded to. Create a folder on your hard drive that will contain all downloaded scenes. If you are using MapScenes software accept the default location. Tap the **OK** button. If you decide at a later point to change this download directory select **Options > MapScenes > Settings**. Figure 3-15 shows the resulting window.

Figure 3-15: Options for EvidenceRecorder



5. Select desired options from the dialog.

   a. If you would like your system to automatically start MapScenes after new data is transferred, select the **Launch Program after Sync** option. Leave it off if you prefer to start MapScenes yourself.

   b. If you prefer to have control over which Scenes are transferred to the desktop system, select **Show project selection…**

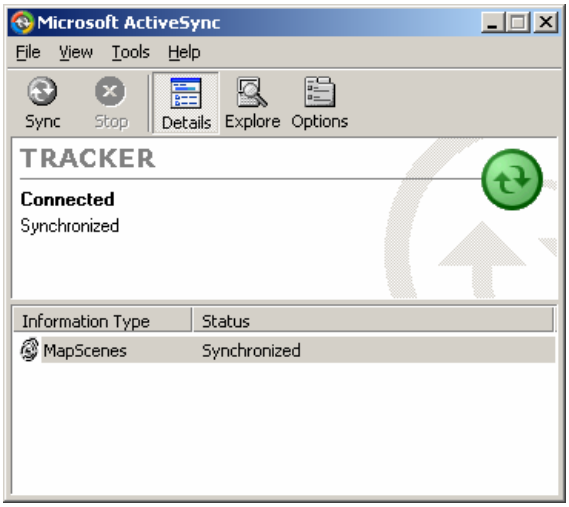
   c. Choose to **Update AutoMAP libraries** if you wish to keep your Evidence Recorder up to date with changes to your AutoMAP libraries.

   d. You can **Create a file transfer report** that details: what files were downloaded, what settings where chosen in the download program, where the files were put and archived, and when the transfer was done.

   Click **OK** to finish.

6. The window that you should see once ActiveSync support is installed and configured is shown in Figure 3-16. Press the large **Sync** button on ActiveSync to re-establish and complete the synchronization with Evidence Recorder.

Figure 3-16: ActiveSync Window after Support has been Installed



***Note**: If you do not have an install CD from MicroSurvey you can download the same ActiveSync Support from the MapScenes website:*

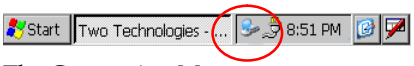
http://www.mapscenes.com/downloads/EvR_Pro2_Upgrade_Instructions.htm

Proceed to "Step 1" on this webpage and follow the detailed instructions posted. Clicking on the executable link will launch the InstallShield Wizard that guides you through the rest of the procedure.

Disconnecting from the Workstation/laptop

To disconnect the MicroSurvey Tracker from the computer system:

1. In the MicroSurvey Tracker system tray, double-tap the connection icon.



2. The Connection Message appears.

3. Tap **Disconnect**.

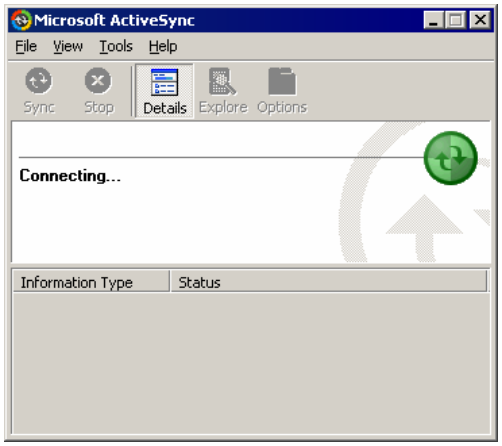
Subsequent Communication – Synchronizing Data

If you have installed ActiveSync and have successfully established a partnership between the Workstation/laptop and the MicroSurvey Tracker, any subsequent communication is simple. Use the following procedure to transfer EvidenceRecorder Scenes to/from the Tracker:

1. Connect the Tracker serial cable to an available COM port on the Workstation/laptop and the other end to the DB9 Communication port on the MicroSurvey Tracker.
2. On the MicroSurvey Tracker desktop, tap **Start** then select **Programs > Communications > PC Link**. This should activate the ActiveSync program on the Workstation/laptop as the two systems re-establish communications. The ActiveSync window on the Workstation/laptop will appear and is shown in Figure 3-17.

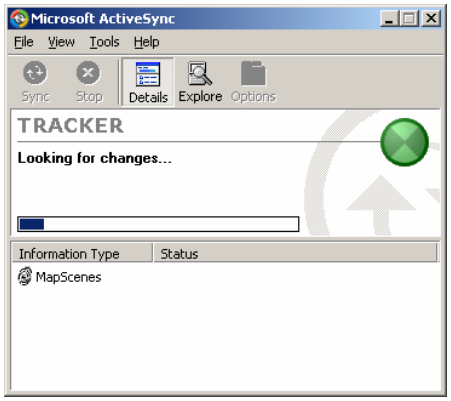
***Note**: You can also press the PC Link icon on the desktop of the Tracker.*

Figure 3-17: Subsequent Communications



Once Communication has been re-established, ActiveSync compares the files on both systems. The ActiveSync window is shown in Figure 3-18.

Figure 3-18: ActiveSync Comparing Files

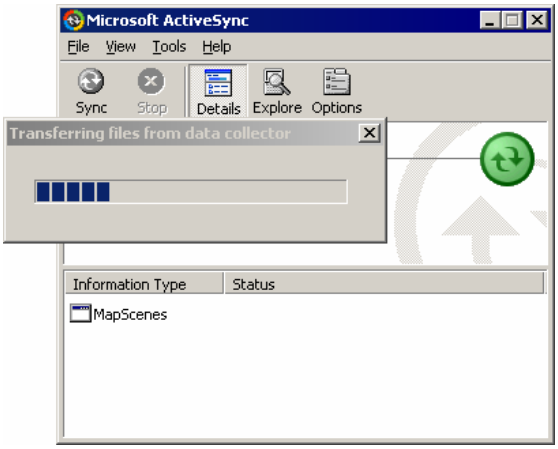


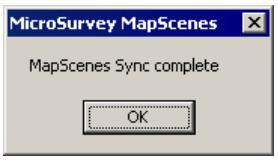
3. If you have any Scenes recorded on the Tracker (Scenes that do not exist on the Workstation/laptop), you are presented with a DOWNLOAD PROJECTS dialog window shown in Figure 3-19. Here you can select the Scenes you wish to download and update the AutoMAP libraries if desired.

Figure 3-19: Download Projects Window

4. After tapping the **Download Now** button, files will be transferred from the Tracker. You will see the following series of Windows:

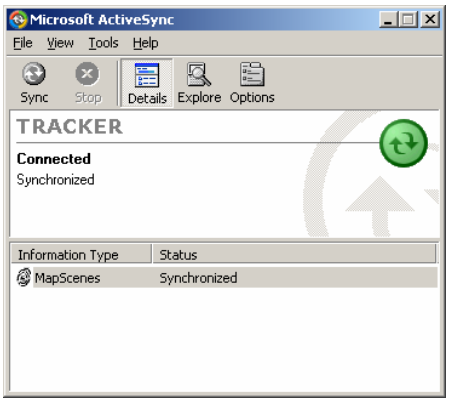
WARNING! *Do not interrupt the transfer once it has begun.*





Once you have seen the above message box, the transfer is complete. The ActiveSync Window will now look like the one shown in Figure 3-20.

Figure 3-20: ActiveSync Window after Scenes Synchronized



Persistent Registry

Saving Changes to the Registry

The MicroSurvey Tracker internal memory consists of DRAM and Flash. Typically, any changes made to the MicroSurvey Tracker including file creation are temporarily stored in the unit's DRAM. You must then copy the files from DRAM to internal flash memory or a removable compact flash card to store the information permanently. Consequently, if you do not store the information to flash memory and the unit loses power, all information stored in DRAM will be lost. However, whenever you make changes that affect the registry, such as changing settings in the Control Panel or installing software, you can permanently store registry changes without writing to flash memory by using the Persistent Registry.

***Note**: The MicroSurvey Tracker will also store registry information when you perform a suspend operation.*

To store registry information on the MicroSurvey Tracker permanently:

1. From the **Start** menu, select **Programs** and tap **SaveReg**.

2. The MicroSurvey Tracker will begin saving the registry.

After you successfully save the registry, a message box will appear:

3. Tap **OK** to close the message box.

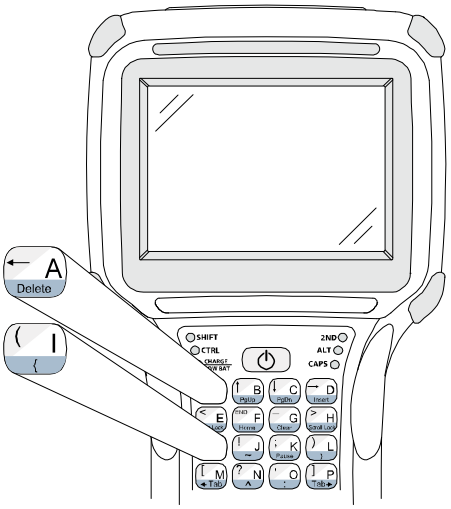
Resetting the Registry

To reset the Windows CE .NET registry back to the factory default settings:

***Note**: This procedure is also referred to as a Hard Reset.*

1. With the Tracker on; press and hold the ON/OFF button for 10 to 15 seconds.
2. Once again, press and release the ON/OFF button immediately followed by the keys in Column 1, Row 1 (upper leftmost) and Column 1, Row 3. These locations correspond with the "A" and "I" keys respectively. This is shown in Figure 3-21.

Figure 3-21: Resetting the Registry



***Note**: The "A" and "I" buttons must be pressed at the same time. These two keys must also be pressed before the white screen appears.*

3. At this point the "A" and "G" keys are still depressed and if you are successful, the screen will display version information, followed by "Invalidating Persistent Registry," before it completes the boot up process. As soon as the boot up screen is visible, release the "A" and "I" keys. The boot up screen is shown below.

```
*****       JETT.ce
*****
Loader Ver x.x.x
Invalidating Persistent
Registry
Booting from System Socket
Loading CE image...
##################
```

Where x.x.x is the version number

Using the Compact Flash Slot

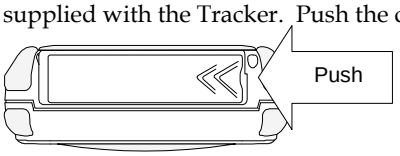
The top of the MicroSurvey Tracker has an access panel to a Compact Flash (CF) slot. Through this slot, you can insert compact flash and device cards.

If you intend to use a device card, it may be necessary to install a driver. If so, make sure the card is Windows CE .net compatible and you have the necessary drivers. If you are not sure, check with the card manufacturer before attempting to install the card

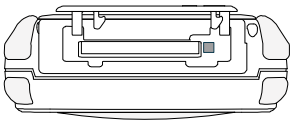
Inserting and Removing Cards

To insert a card:

1. With the front of the display facing you, un-screw the two torx screws using the torx tool supplied with the Tracker. Push the compact flash slot cover to the left.

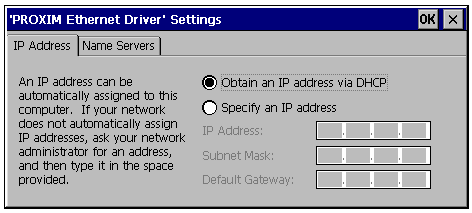


2. The slot cover will automatically pop open.

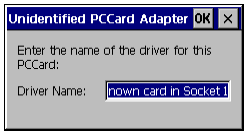


3. Insert the compact flash/device card into the slot with the front of the display facing you and the top of the card pointed to the slot until it clicks and the release lever moves upward.

4. Close the cover.
5. For device cards, the MicroSurvey Tracker will attempt to recognize the device and display a dialog box.
6. If it finds a driver for the device, the MicroSurvey Tracker will display a dialog box for that device. For example:



If the MicroSurvey Tracker cannot find a driver for the device, it will display the following dialog:



7. If the correct card type appears, you can enter the appropriate information in the dialog box as required and then tap **OK** to complete the installation.

   If the MicroSurvey Tracker cannot find the correct driver for the device or you wish to install the driver that came with the card, you must first install/copy the software supplied by the card manufacturer to a host computer and then install/transfer the necessary files to the unit (typically using ActiveSync).

   To remove a card from a slot, simply push the card release lever down and remove the card.

Chapter 4: Configuration

The Control Panel

The table below lists the available control panel functions on the MicroSurvey Tracker.

Table 4-1: Control Panel Functions

Icon	*Function*	*Description*
	Backlight	Use this function to adjust the backlight setting for the following conditions: Line Active, Line Active Inactive, Battery Active and Battery Inactive.
	Battery Select	Select one of the following options to calibrate the power status icons for proper use: NIMH, AC Line or Alkaline.
	Beep Select	Use this function to change the frequency, volume and duration properties of the beep.
	Certificates	Use this function to import, view or remove certificates, which protect your personal information on the Internet, and protect your computer from unsafe software.
	Date/Time	Use this function to adjust the date, time and time zone.
	Dialing	Use this function to adjust the dialing location settings and dialing patterns when using a modem.
	Display	Use this function to adjust the backlight timeout, change the background image or change the desktop color scheme.
	Display Rotation	Use this function to rotate the screen 180 degrees (upside down).
	Input Panel	Use this function to adjust the settings for the input panel.
	Internet Options	Use this function to set up connections, security settings and internet related functions.
	Keyboard	Use this function to change the repeat delay and repeat rate.
	Network and Dial-up Connections	Use this function to change network adapter settings and/or set up identification for remote networks.
	Owner	Use this function to enter the owner name, address, phone numbers and network ID.
	Password	Use this function to enable password protection and set a password.
	PC Connection	Use this function to enable direct connection to a desktop computer
	Power	Use this function to: ▪ Check battery power ▪ Set device to turn off when idle ▪ Set up power schemes ▪ Check the power levels of your system devices

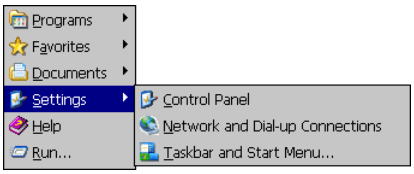
Icon	Function	Description
	Regional Settings	Use this function to change the appearance of region specific information, such as date, time and currency.
	Remove Programs	This function enables you to remove programs installed in RAM.
	Storage Manager	This function enables you to perform the following tasks: • View partition information • Format a partition • Create or delete a partition • Mount or dismount a partition • Scan and repair a partition. • Defragment a partition
	Stylus	Use this function to recalibrate the touch screen and adjust the stylus double-tap rate.
	System	Use this function to view system information, change the RAM (Program/Storage memory) division, or change the device name and description.
	VComAdj	Use this function to minimize screen flicker and adjust contrast.

Changing System Settings

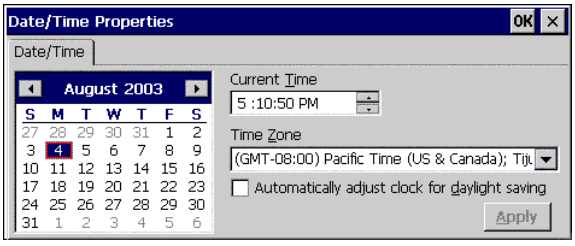
Any time you make changes through the Control Panel (such changing the time zone); you must also update the persistent registry to store the changes in internal compact flash memory to make the changes permanent.

For example, to change the time zone and save the changes to the registry:

1. From the Start menu, tap **Settings** and select **Control Panel**.



2. On the Control Panel, double-tap the Date/Time icon. The Date/Time Properties dialog box appears. You can now set the date, time and time zone.



3. To adjust the **Current Time**, use the scroll bars to increase or decrease the value, or tap hours, minutes, seconds or AM/PM indicator to set the values individually.

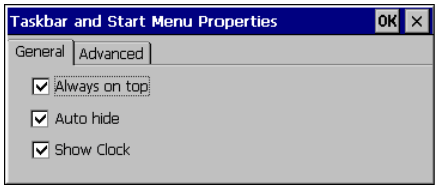
4. To select the **Time Zone**, use the corresponding list.

5. To adjust the **Date**, either:
    - Tap the arrows on the calendar to select the previous/next month
    - Double-tap the month or year to select it from a list
    - Tap a day to select it
6. To adjust the clock automatically for daylight savings, check the corresponding box.
7. Tap **Apply** to have your setting take effect.
8. Tap **OK** to close the Date/Time Properties dialog box and return to the Control Panel.
9. Tap **OK** to exit the Control Panel.
10. From the **Start** menu, select **Programs** and tap **Save Registry**.

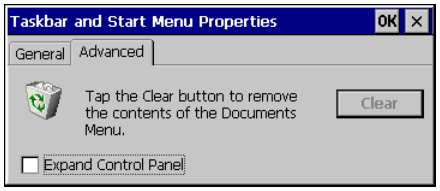
Taskbar and Start Menu Settings

To change the Taskbar and Start Menu settings:

1. Select **Start > Settings> Taskbar and Start Menu**. The Taskbar and Start Menu Properties dialog box opens:
2. Select the **General** tab:



3. Check **Always on Top** to ensure that the taskbar is always visible, even when a program appears in a full window (maximized).
4. Check **Auto hide** to display the taskbar just when you point to the taskbar area.
5. Check **Show Clock** to display the time of day in the taskbar.
6. Select the **Advanced** tab:



7. Tap the **Clear** button to remove the contents of the documents menu.
8. Check the **Expand Control Panel** box to display the contents of the Control Panel as items on the Settings | Control Panel menu.
9. Tap **OK** to save the settings and exit the menu.
10. From the **Start** menu, select **Programs** and tap **Save Registry**.

Network Connections

You can connect directly to a network through an Ethernet or dial-up connection to access e-mail, access files available on the network server, and browse the Internet.

Creating a Network (Ethernet) Connection

To create a network (Ethernet) connection:

1. On your device, insert the Ethernet card.
2. Select **Start > Settings > Control Panel**. Tap the Network and Dialup Connections icon.
3. Double-tap the connection icon for the adapter. For example, if you have a NE2000 Ethernet adapter, double-click the **NE2000** connection icon.
4. In the Ethernet Driver Settings dialog box, select **Obtain an IP address via DHCP** and tap **OK**.
5. If prompted, enter the **User Name**, **Password**, and **Domain** name you use to log on to your network.
6. From the **Start** menu, select **Programs** and tap **Save Registry**.

Setting Up Identification for Remote Networks

To set up identification for remote networks:

1. Select **Start > Settings > Control Panel**.
2. Open the Owner icon.
3. In the **Network ID** tab, enter the user name, password, and domain name you use to log on to the remote network.
4. From the **Start** menu, select **Programs** and tap **Save Registry**.

Connecting to a Mail Server

You can send and receive e-mail by connecting to a POP3 or IMAP4 server. Inbox contains an e-mail service for each method you use. For either service, you must establish a connection to your Internet service provider (ISP) or to the appropriate mail server in your local area network. In addition to creating this connection, you must also create the e-mail service.

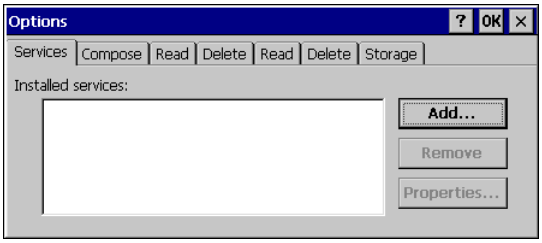
Prior to setting up a service, you should obtain the following information from your ISP or network administrator: POP3 or IMAP4 server name, SMTP host name, user name, password and domain name (for network connections only).

***Note**: Windows CE .Net does not support other mail protocols such as AOL or services that use special authentication, such as MSN. However, you can gain access to the Internet through these services. If you use the same service to connect to different mailboxes, set up and name a different service for each connection.*

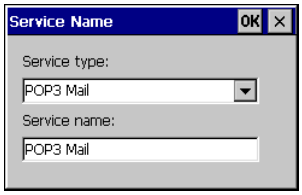
For additional information about the inbox, refer to Windows CE .NET online help.

To connect to your POP3 or IMAP4 mail server:

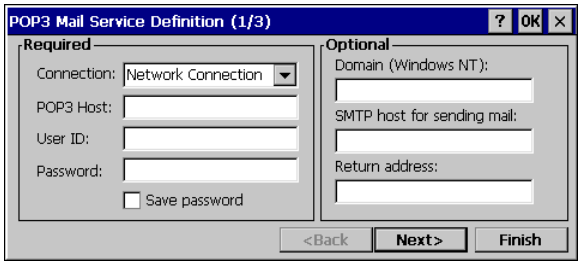
1. Open Inbox. Select the **Services** menu and choose **Options**. The Options dialog box opens.



2. Select the **Services** tab and tap **Add**. The Service Name dialog box opens.



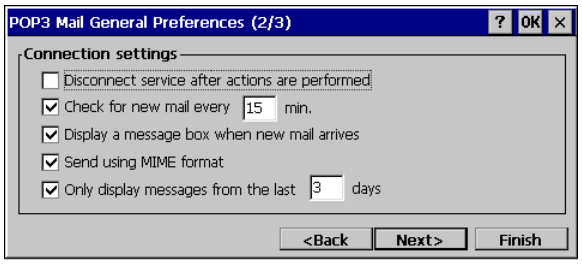
3. From the **Service type** list, select **POP3 Mail** or **IMAP4 Mail**.
4. Enter a unique name for the service (you cannot change this name once entered).
5. Tap **OK**. The Mail Service Setup wizard appears.



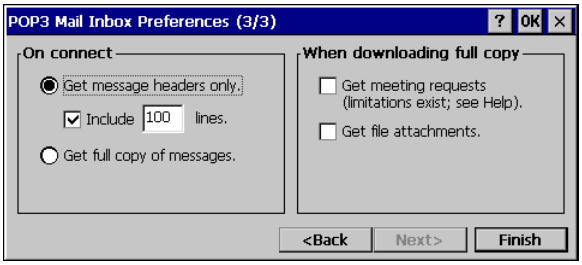
6. In the Required panel:
   - Select the name of the connection you created to connect to the mail server. If you are receiving e-mail through a network (Ethernet) connection, select **Network Connection**.

     If you want Inbox to use your current connection, select **(none)**.

     If you have not created a connection, select **Create new connection**, double-tap the Make New Connection icon, and follow the instructions in the wizard. When finished, select Inbox in the Taskbar and continue setting up Inbox.
   - Enter the **POP3 Host** or Server (IMAP4) name of the mail server you use to receive and send messages.
   - Enter the **User ID** (user name or mailbox ID) assigned to you.
   - Enter the password you will use to access this mail account. If you do not want a prompt to enter the password each time you connect, select **Save password**.
7. In the Optional panel:
   - If connecting to a network that uses Windows NT domain security, enter the Windows NT domain name.
   - If your mail service uses a separate server for SMTP, enter the **SMTP Host** name. For POP3 Mail service with an ISP, the ISP must use an SMTP mail gateway.
   - Enter your return e-mail address.
8. Tap **Next**. The General Preferences dialog box opens.



9. Choose any of the settings, all of which are optional, then click **Next**. The Inbox Preferences dialog box opens.



10. Choose any of the settings as needed, then click **Finish**. The Mail Service Setup wizard closes and the Options dialog box reappears.

***Note**: Receiving entire messages consumes storage memory.*

11. Close the Options dialog box to return to the Inbox.
12. From the **Start** menu, select **Programs** and tap **Save Registry**.

Chapter 5: Troubleshooting

Problem	My MicroSurvey Tracker does not respond when I press the power button.
Solutions	Is the unit in Suspend mode? If battery-powered, check the batteries. Are all cables connected properly: • Is the power supply plugged into an active AC outlet? • Is the power connector securely plugged into the MicroSurvey Tracker?
Problem	I changed my system settings, but when I turn on the MicroSurvey Tracker, my settings are gone.
Solution	You must save the registry after making any system or configuration changes.
Problem	The Windows hour-glass icon appears in the centre of the Tracker screen and will not go away.
Solution	Turn the Tracker off and on again. Perform a warm-boot if possible. If the hour glass persists you will have to reset the registry. This procedure is also referred to as a hard reset. The Scenes you have collected will not be deleted – they are saved in flash memory. Even though the Scenes can be recalled you should should develop the habit of downloading Scenes using ActiveSync on a regular basis. Your Workstation/laptop serves as a backup.
Problem	I transferred files to the MicroSurvey Tracker from my host computer, and when I turned the Tracker on; my transferred files are missing.
Solution	To store transferred files permanently, you must file copy the files into internal flash memory or a compact flash card. Occasionally, transferred files are hidden from view. You can check the system settings by double-tapping My Computer and selecting Options from the View menu. All boxes should be toggled off (cleared).
Problem	I cannot connect to the Desktop System using ActiveSync.
Solutions	Did you install ActiveSync using the Administrator account? Check the cable connections. Check the serial communications configuration. Make sure the correct COM port is available. In ActiveSync, check the Connection Settings for the connection type you are using (USB, Serial or Ethernet).

Problem	The stylus is not responding properly.
Solution	The screen is not calibrated correctly to interpret the screen taps. You need to recalibrate the screen.

Problem	The MicroSurvey Tracker acts slowly.
Solutions	The unit may be short of program memory or storage memory. Increase the amount of storage or program memory through the System control in the Control Panel. You can also delete any unnecessary files.

Problem	I get little or no sound from the MicroSurvey Tracker.
Solution	Adjust the volume and sound properties via the Volume and Sound control in the Control Panel.

Problem	The MicroSurvey Tracker does not recognize a compact flash or device card.
Solution	The card is not installed or seated properly. Reinstall the card. There may be an unstable connection between the card and the MicroSurvey Tracker. Remove the card, clean the edge connector with a soft dry cloth, and reinstall the card.

Problem	The MicroSurvey Tracker goes into auto-suspend after a short period of inactivity.
Solution	As a default, the device will auto-suspend after two minutes of inactivity while running on batteries and after thirty minutes of inactivity when running on AC power. Adjust the power management properties via the Power control in the Control Panel.

Problem	No sound is heard when you tap the touch screen or press a key.
Solution	Volume setting is low or turned off. Check the volume slider in the Volume & Sound properties dialog box in the Control Panel.

Problem	The screen is too light or too dark.
Solution	Adjust the brightness via the brightness control available through the "Display" icon in the Control Panel. It can also be adjusted by pressing the SHIFT key followed by "M" or "O" keys. ("O" will change the screen to a brighter setting. This process can be repeated until desired brightness occurs. Pressing "M" will perform the opposite.) When using the Tracker in direct sunlight, use the "High Contrast White" Scheme on the Appearance tab under the Display options.

Appendix A: Specifications

Power

- Recharge/Line-Power: 11 to 18 VDC, 1.5A
- Battery Type: Nickel Metal Hydride Rechargeable (1400 mAH, 7.2V) or 6 AA alkaline batteries

Battery

- Average operating time between ten and twelve hours on a full charge with power management and approximately eight hours without power management
- 3 hours charge time (for full charge)

Display

- Supertwist Nematic Liquid Crystal TFT with white LED backlight
- Resolution: 320 x 240 pixels QVGA color
- Touch Screen

Environmental

- Operating Temperature: 0°F to 122°F ~(-17°C to +50°C)
- Storage Temperature: -13°F to +158°F ~(-25°C to +70°C)
- Charging Temperature: 0°C to + 40°C
- Humidity: 5-95% Non-condensing

CPU

- Type: Intel PXA255 processor with XScale technology
- Instruction Set Architecture: ARM v.5TE
- Speed: 200 MHz (400 MHz optional)
- Operating System: Windows CE .NET 4.2 Professional

Memory and Mass Storage

- SDRAM: 64MB
- Internal Compact Flash: 128 MB standard (16MB reserved for OS)
- Optional: Compact flash card slot

Interface

- Serial Communication:
  - Standard: Interface configured as COM1 for RS-232 serial communication (DB9 port)
- Power:
  - Standard: Input at 11 to 18 VDC via power jack for line-power or battery charging operations
  - Optional: Output at 5 VDC to operate peripheral devices (either port)

User Input

- Touch Screen
- Key Pad: 30-Key membrane or elastomeric (10 rows x 3 columns)
  - Feedback: Tactile and audible
  - Optional LED backlit Keypad (elastomeric only)

Indicators

- 2 Modifier Key/Programmable LEDs
- Charge/Low Battery Indicator (battery-powered units only)

Physical Dimensions

- Height (H): 9.84 Inches (250 mm)
- Width (W): 4.75 Inches (120.7 mm)
- Depth (D): 1.83 Inches (46.5 mm)
- Weight :
  - Without Batteries: 23 Ounces (652 grams)
  - With Alkaline Batteries: 28 Ounces (794 grams)
  - With NiMH Batteries: 29 Ounces (822 grams)

Index

N

O

P

R

S

T

U